

What is claimed is:

1. A metal oxide electrode coated with a porous metal thin film, a porous metal oxide thin film or a porous carbon thin film to a thickness of a few Å ~ a few μm thereon, for a secondary battery.

2. A method for fabricating metal oxide electrode coated with a porous metal, metal oxide or a carbon thin film, comprising the steps of:

positioning a metal oxide electrode roll within a vacuum chamber;

coating a porous metal thin film to a thickness of a few Å ~ a few μm on the surfaces of the sheet of metal oxide electrode; and

stabilizing the thusly coated metal oxide electrode under a vacuum.

3. The method of claim 2, wherein the porous metal, the metal oxide or the carbon thin film are fabricated by one of a heating deposition method, an electron beam deposition method, an ion line deposition method, a sputtering deposition method or a laser ablation method, or their mixture.

4. The method of claim 2, wherein the porous metal is at least one of lithium, aluminum, tin, bismuth, silicon, antimony, nickel, copper, titanium, vanadium, chrome, manganese, ferrite, cobalt, zinc, molybdenum, tungsten, silver, gold, platinum, iridium, ruthenium, or their alloys.

5. The method of claim 2, wherein the stabilization is performed under a vacuum of below  $10^{-1}$  torr at a temperature of 20°C ~ 100°C for 1 ~ 24

hours.

6. The method of claim 2, wherein the metal oxide electrode is an active material such as  $\text{LiCoO}_2$ ,  $\text{LiMn}_2\text{O}_4$ ,  $\text{LiNiO}_2$ ,  $\text{V}_6\text{O}_{13}$  or  $\text{V}_2\text{O}_5$

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7. A lithium-ion secondary battery comprising:

a metal oxide electrode coated with a porous metal, a metal oxide or a carbon thin film having a thickness of a few Å ~ a few μm and being  $\text{LiCoO}_2$ ,  $\text{LiMn}_2\text{O}_4$ ,  $\text{LiNiO}_2$ ,  $\text{V}_6\text{O}_{13}$  or  $\text{V}_2\text{O}_5$ ; and

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an anode being graphite, coke or hard carbon.